CLAIMS

What is claimed is:

1   1. A method for distributed upstream quality of service (QOS) processing in a

2 broadband access system, the method comprising:

3   measuring a quality of received packets sent by a modem in an upstream

4 channel at an upstream modem termination system;

5   determining whether the measured quality is within a predetermined range;

6   reporting an out-of-range quality for the received packets to a network

7 management server; and

8   modifying operating parameters for the upstream channel in accordance with

9 the measured quality, if an out-of-range quality is reported.

1   2. The method of Claim 1, wherein measuring a quality of received packets

2 comprises measuring a signal-to-noise ratio (SNR).

1   3. The method of Claim 1, wherein measuring a quality of received packets

2 comprises measuring a bit error rate (BER).

1   4. The method of Claim 1, wherein measuring a quality of received packets

2 comprises measuring a Forward Error Correction (FEC) quality measure.

1   5. The method of Claim 1, wherein if the quality measure is below a

2 predetermined lower limit for some averaged or weighted averaged value for a series

3 of packets, then the modem ID and the measured quality data of a particular packet or

4 average is reported to the network management server.

1   6. The method of Claim 5, wherein the network management server reassigns

2 the modem to a different downstream channel in the same or overlapping. sector,

3 which has a different operating frequency.

1   7. The method of Claim 5, wherein the network management server reassigns

2   the modem to a lower order modulation type.

1   8. The method of Claim 5, wherein the network management server reassigns

2   the modem to a lower symbol rate.

1   9. The method of Claim 5, wherein the network management server reassigns

2   the modem to a more robust Forward Error Correction scheme.

1   10. The method of Claim 5, wherein the network management server

2   reassigns the modem to a combination of a different frequency, a lower order

3   modulation type, a lower symbol rate, and a more robust Forward Error Correction

4   scheme.

5   11. The method of Claim 1, wherein if the quality measure is above a

6   predetermined upper limit for some averaged or weighted averaged value for a series

7   of packets, then the modem ID and the measured quality data of a particular packet or

8   average is reported to the network management server.

1   12. The method of Claim 11, wherein the network management server

2   reassigns the modem to a channel with a higher order modulation.

1   13. The method of Claim 11, wherein the network management server

2   reassigns the modem to a different type of modulation.

1   14. The method of Claim 11, wherein the network management server

2   reassigns the modem to a faster symbol rate.

1   15. The method of Claim 11, wherein the network management server

2   reassigns the modem to a lower Forward Error Correction scheme.

1   16. The method of Claim 11, wherein the network management server

2   reassigns the modem to a channel which has similar parameters but less traffic.

-10-

1   17. A method for distributed downstream quality of service (QOS) processing

2   in a broadband access system, the method comprising:

3   measuring a quality of received packets in a downstream channel at a modem;

4   comparing the measured quality with predetermined boundary conditions;

5   determining whether the measured quality is within the predetermined

6   boundary conditions;

7   sending an exception to a network management server, if the measured quality

8   is outside the boundary conditions; and

9   modifying operating parameters for the downstream channel in accordance

10   with the measured quality.

1   18. The method of Claim 17, wherein if the measured quality is below a lower

2   limit, the network management server reassign the modem to a different downstream

3   channel.

1   19. The method of Claim 17, wherein if the measured quality exceeds an

2   upper limit, then the modem sends an exception signal offering to move to a less

3   utilized channel.

1   20. The method of Claim 17, wherein if the measured quality exceeds an

2   upper limit, then the modem sends an exception signal offering to move to a channel

3   with a higher net data rate.

1   21. The method of Claim 17, wherein if the measured quality is below a lower

2   boundary condition, the exception is sent with a high priority, and if the measured

3   quality is above a high boundary condition, the exception is sent with a lower priority.

1   22. A method for distributed processing for optimal quality of service (QOS)

2   in a broadband access system, the method comprising:

3   a method for distributed upstream quality of service (QOS) processing, the

4   method comprising:

5   measuring a quality of received packets sent by a modem in an

6   upstream channel at an upstream modem termination system;

7   determining whether the measured quality is within a predetermined

8   range;

9   reporting an out-of-range quality for the received packets to a network

10   management server; and

11   modifying operating parameters for the upstream channel in

12   accordance with the measured quality, if an out-of-range quality is reported; and

13   a method for distributed downstream quality of service (QOS) processing, the

14   method comprising:

15   measuring a quality of received packets in a downstream channel at a

16   modem;

17   comparing the measured quality with predetermined boundary

18   conditions;

19   determining whether the measured quality is within the predetermined

20   boundary conditions;

21   sending an exception to a network management server, if the measured

22   quality is outside the boundary conditions; and

23   modifying operating parameters for the downstream channel in

24   accordance with the measured quality.